

Top Ten Bed Bugs Tips

1 **Make sure you really have bed bugs, not fleas, ticks or some other insect.** You can compare your insect to the pictures on our bed bug Web page or show it to your local extension agent.

2 **Don't panic!** Eliminating bed bugs is difficult, but it's not impossible. Don't throw out all of your things because most of them can be treated and saved. Throwing stuff out is expensive, may spread the bed bugs and could cause more stress.

3 **Think through your treatment options – Don't immediately reach for the spray can.** Try other things first. Integrated pest management (IPM) techniques may reduce the number of bed bugs and limit your contact with pesticides. If pesticides are needed, always follow label directions or hire a professional. There is help available to learn about treatment options.

4 **Reduce the number of hiding places – Clean up the clutter.** A cluttered home provides more places for bed bugs to hide and makes locating and treating for them harder. If bed bugs are in your mattress, using special bed bug covers (encasements) on your mattress and box springs makes it harder for bed bugs to get to you while you sleep. Leave the encasements on for a year. Be sure to buy a product that has been tested for bed bugs and is strong enough to last for the full year without tearing.

5 **Regularly wash and heat-dry your bed sheets, blankets, bedspreads and any clothing that touches the floor.** This reduces the number of bed bugs. Bed bugs and their eggs can hide in laundry containers/hampers, so clean them when you do the laundry.

6 **Don't rely on do-it-yourself freezing as a reliable method for bed bug control.** While freezing can kill bed bugs, temperatures must remain very low for a long time. Home freezers are usually not cold enough to kill bed bugs. Putting things outside in freezing temperatures can kill bed bugs, but it can take several days when the temperature is 0° F and almost a week when the temperature is 20° F.

7 **Use heat to kill bed bugs, but be very careful.** Raising the indoor temperature with the thermostat or space heaters won't do the job. Special equipment and very high temperatures are necessary for successful heat treatment. Black plastic bags in the sun might work to kill bed bugs in luggage or small items, if the contents become hot enough (about 110°F for at least 3 hours).

8 **Don't pass your bed bugs on to others.** Bed bugs are good hitchhikers. If you throw out a mattress or furniture that has bed bugs in it, you should slash or in some way destroy it so that no one else takes it and gets bed bugs.

9 **Reduce the number of bed bugs to reduce bites.** Thorough vacuuming can get rid of some of your bed bugs. Carefully vacuum rugs, floors, upholstered furniture, bed frames, under beds, around bed legs, and all cracks and crevices around the room. Change the bag after each use so the bed bugs can't escape. Place the used bag in a tightly sealed plastic bag and in an outside garbage bin.

10 **Turn to the professionals, if needed.** Hiring an experienced, responsible pest control professional can increase your chance of success in getting rid of bed bugs. If you hire an expert, be sure it's a company with a good reputation and request that it use an IPM approach. Contact your state pesticide agency for guidance about hiring professional pest control companies.

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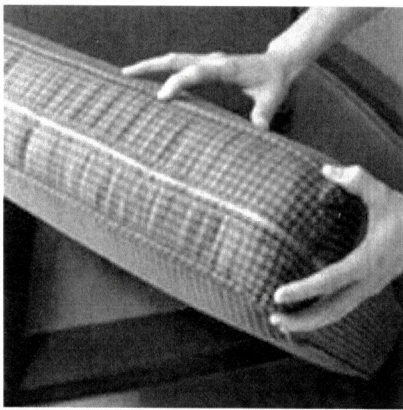
Protecting Your Home from Bed Bugs

[Información relacionada disponible en español](#)

Bed bugs are great hitchhikers. They can move from an infested site to a new home by traveling on furniture, bedding, luggage, boxes and clothing.

Although they typically feed on blood every 5 to 10 days, bed bugs can be quite resilient; they are capable of surviving several months to a year without feeding.

A few simple precautions can help prevent bed bug infestation in your home:



Inspect the luggage rack in your hotel room for bed bugs.

- Check secondhand furniture, beds and couches for any [signs of bed bug infestation](#) before bringing them home.
- Use a protective cover that encases mattresses and box springs to eliminate many hiding spots. The light color of the encasement makes bed bugs easier to see. Be sure to purchase a high quality encasement that will resist tearing and check the encasement regularly for holes or a cover that has been pre-treated with pesticide to control bed bugs.
- Reduce clutter in your home to reduce hiding places for bed bugs.
- Vacuum frequently to remove any successful hitchhikers.
- Be vigilant when using shared laundry facilities. Transport items to be washed in plastic bags (if you have an active infestation, use a new bag for the journey home). Remove from dryer directly into bag and fold at home. (A dryer on high heat can kill bed bugs.)
- If you live in a multi-family home, try to isolate your unit by:
 - Installing door sweeps on the bottom of doors to discourage movement into hallways.
 - Sealing cracks and crevices around baseboards, light sockets, etc., to discourage movement through wall voids.

- Consider purchasing a portable heating chamber to treat any items that you believe may have bed bugs.
 - Be sure to read and carefully follow the directions if you use one of these units and be aware that they are not regulated by EPA or other federal agencies.
- [More information on controlling bed bugs.](#)

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Protecting Yourself from Bed Bugs in Public Places

It is very unlikely, though not impossible, that a bed bug infestation will develop in an office, classroom, or other non-residential environment, such as a department store. However, these sites can serve as transfer hubs for bed bugs to hitchhike a ride into your home. Management, staff, students and workers all have roles to play in reducing the spread of bed bugs.

Steps You Can Take

- Reduce clutter. Clutter serves as an ideal habitat for bed bugs whether at home, school or office. By reducing clutter in your workplace or school, you provide fewer places for the bed bugs to hide and fewer opportunities for them to hitchhike to your home.
- Keep your belongings stowed separately from those of other people. If there is a known problem with bed bugs in the office or school, consider storing your belongings in a plastic bin.
- Be vigilant in areas where bed bugs are most likely to be found, which include break rooms, storage areas (coat closets or cubbies), offices or lounges with upholstered furniture, or areas where people may rest.
- Establish a monitoring program so that if a bed bug is found in an area the status of that area will be formally tracked.
 - Multiple sightings in the same area could indicate an infestation or multiple reintroductions from someone's home.
- Educate the staff so that they know what to do if a bug is found that appears to be a bed bug.
- Discourage panic and the stigma associated with bed bugs. These are counterproductive and can make treatment more difficult.
- Vacuum daily to pick up any stray bugs before they settle in.

If a Bed Bug is Found

- Inform management and facility staff who have the lead in any control efforts.
- Only treat if a true infestation is found with breeding bed bugs. Remember, a single bed bug is not an infestation.
 - Hire a pest professional that uses integrated pest management techniques.
 - You can minimize exposure of workers or students by applying pesticides on a Friday evening, or other time that building occupants are not present.

- Alert everyone who works in the building. Let staff know how the sighting will be handled. This allows them to take additional precautions to protect their homes as well as limiting rumors and speculation.

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Getting Rid of Bed Bugs

When a bed bug infestation is discovered there are multiple methods for controlling it. Be aware that it will take time and patience; there is no quick fix for eradication. There are both chemical and non-chemical approaches available. While using one or the other works, an approach that uses a combination of both can be the most effective. Using this combination of approaches is often referred to as integrated pest management.

[Preparing for control](#) is very important whether you are considering hiring a professional or planning to do it yourself.

[Controlling bed bugs using integrated pest management](#) means using a variety of methods, including both chemical and non-chemical techniques.

If you would like to use a [do-it-yourself](#) approach, be sure to come up with a plan to execute to ensure eradication and safety. All do-it-yourself products, especially foggers, should be researched and employed properly. In addition, you should be careful to only use legal control methods, as others may cause serious harm.

[Hiring a pest management professional](#) is a good option in many cases, but you need to be careful in how you select a company.

Related Information

[Collaborative Strategy on Bed Bugs](#) - highlights ways that all levels of government, community, academia and private industry can work together to reduce bed bugs across the United States.

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Do-it-yourself Bed Bug Control

[Información relacionada disponible en español](#)

Can you get rid of bed bugs on your own?

Treating bed bugs is complex. Your likelihood of success depends on many factors, including:

- How many bed bugs you have;
- How much clutter is available for hiding places;
- Whether your neighbors have bedbugs; and
- Whether all residents of a house or building will participate.

Getting rid of bed bugs completely can take weeks to months, depending on the nature and extent of the infestation. To be successful, everyone will need to cooperate and do their part.

The following steps will help you begin:

1. [Identify the problem](#)
2. [Develop a strategy](#)
3. [Keep the infestation from expanding](#)
4. [Prepare for treatment](#)
5. [Kill the bed bugs](#)
6. [Evaluate and prevent](#)

You may have to follow these steps more than once to kill all the bugs and their eggs.

Identify the Problem

- Identify the pest:
 - Collect a sample of the pest to [show an extension agent](#) EXIT or other insect expert.
 - Extension agents can identify the pest at no cost to you. They are trained in pest control and know your local area.
- If an extension agent or other expert says the pest is a bed bug, notify your landlord if you live in an apartment. The units near yours should be inspected.
 - [Landlords may have a responsibility](#) EXIT to participate in treatment.
 - [Check the housing codes and laws in your area](#).

- Inspect all areas that may have bed bugs, plus surrounding living spaces, to find out the extent of infestation.

Develop a Strategy

- Make a schedule for completing the steps below. Be sure to include any personal plans, such as vacations.
- Keep records through the whole process. Note the dates and exact locations where pests are found. This will help you track progress and better know where to target your work.
- Keep checking for at least a year after you're done to make sure all the bed bugs are gone.

Keep the Infestation from Spreading

- Remove infested items. Place them in a sealed plastic bag and treat them. Learn more about treatment methods in the sections below.
- Items that cannot be treated should be placed in a sealed plastic bag and left there for up to a year to ensure any active bugs are dead.
- Empty the vacuum after each use. Seal the bag as tightly as possible and immediately throw it out in an outdoor trash container.
- Discard furniture responsibly if you can't safely eliminate the bed bugs. Destroy it so someone else won't be tempted to bring it into their home. For example:
 - Rip covers and remove stuffing from furniture items.
 - Use spray paint to mark furniture with "Bed Bugs."
- Have infested items picked up as soon as possible by the trash collection agency.
- Don't discard furniture if you can safely eliminate the bed bugs from it.

Prepare for Treatment

Preparing for treatment is very important; it will make it easier to monitor for bed bugs that haven't been eliminated. This preparation should be completed whether you are doing the treatment yourself or hiring a professional.

[Learn more about preparing for treatment](#)

[Learn about treatment options \(PDF\)](#). (4 pp, 480 K, [About PDF](#))

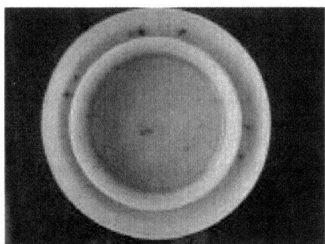
EXIT

Kill the Bed Bugs

- Make sure the methods you select are safe, effective and legal. See [What's Legal](#), [What's Not](#).
- Consider **non-chemical methods** of killing bed bugs. Some will be more useful than others depending on your situation. These and other methods can be helpful, but they might not get rid of the infestation entirely:
 - **Heat treatment:** You can use a clothes dryer on high heat. You can also use black plastic bags in a hot, closed car in the sun, but success depends on your climate and other factors. Do-it-yourself heat treatments might not work. Professionals have access to more intensive and proven methods that can even treat whole houses with heat. You may also purchase a portable heat chamber, which is usually quite effective.
 - **Cold treatment** can be successful in the home environment if the freezer is set to 0° F. You must leave the items in a sealed bag in the freezer at that temperature for four days. Always use a thermometer to check the temperature, since home freezers are not always set to 0°.
 - **Steam cleaners** (wet or dry) can get into cracks and fabrics to treat carpets, baseboards, bed frames, and other furniture. The steam temperature must be at least 130° F but should not have a forceful airflow, or it may cause bed bugs to scatter. Use a diffuser to prevent scattering.
- **If needed, hire a pest management professional or use pesticides** carefully according to the label directions:
 - Look for EPA-registered pesticides that have bed bugs listed on the label.
 - Use foggers (bug bombs) only with extreme care and only if bed bugs are listed on the label. Improper use can harm your health or cause a fire or explosion. Foggers should not be your only method of bed bug control. The spray will not reach the cracks and crevices where bed bugs hide. See [Should I Use a Fogger?](#) for more information.
- **Carefully look for any evidence of bed bugs** every few days after you complete your initial cleanup and control processes. If you see bed bugs, either the initial cleanup missed some bugs or eggs have hatched. Retreatment may be needed.
- Consider using [different types of pesticides](#) if repeated treatments are needed. **Desiccants (chemicals that dry things out) can be particularly effective** in some situations since they work by drying out the bug (which means the bed bugs can't develop resistance).
 - If using desiccants, be sure to use only products [registered by EPA as a pesticide](#).
 - **Do not use pool- or food-grade diatomaceous earth** (made from the fossilized remains of tiny, aquatic organisms called diatoms). This

type of diatomaceous earth can harm you when you breathe it in. The pesticide version uses a different size of diatoms, which reduces the hazard.

- Desiccants can be very effective but may take several months to work.



Bed bug interceptor
(place under furniture
legs to catch bed bugs)

Evaluate and Prevent

- Continue to inspect for bed bugs, at least every 7 days, in case any eggs remain. You can use interceptors, traps or other monitoring methods. Interceptors are placed under the legs of furniture to catch bed bugs and keep them from climbing the legs. Commercial and do-it-yourself interceptors are options.
- Continue to protect your home from bed bugs.

For additional information, please see :

The following links exit the site **EXIT**

[Bed bugs — National Pesticide Information Center](#)

[Bed bugs: Do-it-yourself control options -- Texas A & M AgriLife Extension](#)

[Bed Bug Control in Residences -- University of Minnesota](#)

[Bed Bugs Integrated Pest Management in and Around the Home -- University of California](#)

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Pesticides to Control Bed Bugs

Finding and Using Bed Bug Pesticides

- Use EPA's [Bed Bug Product Search tool](#) to help you find a pesticide product
- [Consult a pest management professional](#) to inspect your residence and, if needed, apply approved pesticides to treat any infestation.
- The [Cooperative Extension Service](#) office in your area can assist with choosing appropriate pesticides for your area and situation.
- Read [When Treatments Don't Work](#) before reapplying or trying a different product.
- Sometimes people want to try things to control bed bugs that are not legal. See [Stay Legal and Safe in Treating for Bed Bugs](#) for more information.

[Información relacionada disponible en español](#)

EPA has registered more than 300 products for use against bed bugs. Most of these can be used by consumers, but a few are registered for use only by specially trained professionals. EPA evaluates data on the safety and the effectiveness of the products before approving them.

Learn more about [EPA's regulation of bed bug products](#).

These 300 registered products fall into seven chemical classes of pesticides that are currently registered and widely used for bed bug control:

- [pyrethrins](#),
- [pyrethroids](#)
- [desiccants](#),
- [biochemicals](#),
- [pyrroles](#),
- [neonicotinoids](#), and
- [insect growth regulators](#).

There is also an additional chemical class registered for a very narrow use pattern. Dichlorvos (also known as DDVP, an organophosphate) is registered as a pest strip for treatment of small enclosures.

Each chemical class kills bed bugs using a different mode of action. It can be helpful to use pesticides that differ in their mode of action because it can reduce the likelihood that the bugs will develop resistance. The following paragraphs discuss in more details each of the more commonly used chemical classes for bed bugs.

Learn more about [effectiveness of bed bug pesticides](#).

Pyrethrins and Pyrethroids: Pyrethrins and pyrethroids are the most common compounds used to control bed bugs and other indoor pests. Pyrethrins are botanical insecticides derived from chrysanthemum flowers. Pyrethroids are synthetic chemical insecticides that act like pyrethrins. Both compounds are lethal to bed bugs and can flush bed bugs out of their hiding places and kill them. However, where resistant bed bug strains exist, these treatments may cause them to move to a new hiding place or temporarily flush them out of existing locations.

Some bed bug populations have become resistant to pyrethrins and pyrethroids. Sometimes using a combination product (either multiple pyrethroid or pyrethrin active ingredients, or one that combines different chemical classes into the same product) can improve bed bug control. It can also be helpful to switch to an entirely different chemical class to control resistant bed bug populations.

Some pyrethroid pesticides come in the form of a total release fogger. See [Should I Use a Fogger?](#) for information about fogger use and safety.

Desiccants: Desiccants work by destroying the waxy, protective outer coating on a bed bug. Once this coating is destroyed, the bed bugs will slowly dehydrate and die. Desiccants are a valuable tool in bed bug control. Because desiccants work through a physical mode of action, the bed bugs cannot become resistant to desiccants as they can to pesticides with other modes of action. In addition, they have a long-lasting effect and don't disturb normal bed bug activities.

Examples of desiccants include:

- Diatomaceous earth.
- Boric acid.

When using desiccants to control bed bugs it is critical to use those that are registered by EPA and labeled for bed bug control. Desiccants that are intended for other uses, such as food-grade or for use in swimming pools, pose an increased inhalation risk to people. Use of desiccants is limited to cracks and crevices use only to reduce inhalation risk.

Biochemicals: Cold pressed neem oil is the only biochemical pesticide registered for use against bed bugs. Cold pressed neem oil is pressed directly from seeds of the Neem tree, a tropical evergreen tree found in Southeast Asia and Africa. The oil contains various compounds that have insecticidal and medicinal properties. It is also used in making products including shampoos, toothpaste, soaps, and cosmetics. Performance trials conducted at the approved label rates show both products control bed bug adults, nymphs, and eggs.

Pyrroles: Chlorfenapyr is the only pyrrole pesticide currently registered for use against bed bugs. The compound is a pro-insecticide, i.e. the biological activity depends on its activation to form another chemical. The new chemical disrupts certain functions in the bed bug's cells, causing its death.

Neonicotinoids: Neonicotinoids are synthetic forms of nicotine and act on the nicotinic receptors of the nervous system by causing nerves to fire continually until they fail. Because neonicotinoids use this different mode of action, bed bugs that are resistant to other pesticides will remain susceptible to the neonicotinoid.

Insect growth regulators: Insect growth regulators are chemicals that mimic juvenile growth hormones in insects. They work by either altering the production of chitin (the compound insects use to make their hard external "shell" or exoskeleton) or by altering an insect's development into adulthood. Some growth regulators force the insect to develop too rapidly, while others stop development.

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Bed Bug Information Clearinghouse

The information on these pages is intended to help states, communities, and consumers in efforts to prevent and control bed bug infestations. We want you to get the best information that's available, so on this page you will find bed bug outreach materials from a variety of sources.

Search the library by:

Audience

Topic

Type of Resource

Publications of General Interest

Publications in Other Languages

How we choose what to include in the clearinghouse

The Bed Bug Information Clearinghouse currently includes only material from:

- Federal agencies.
- State and local governments.
- Extension services.
- Universities.

When reviewing material for inclusion in the Clearinghouse, we consider:

- The accuracy of information.
- The discussion on pesticides.
- The appropriateness for the audience.
- How well the information is communicated, i.e., clarity of language, graphics, layout.

If you would like us to consider including your material in the Bed Bug Information Clearinghouse, please email [Claire Gesalman](mailto:gesalman.claire@epa.gov) (gesalman.claire@epa.gov).

Many of the materials referenced are copyrighted and as such may not be altered

or modified. If you are interested in modifying the bed bug item for local, tailored use (such as by inserting contact information), contact the author for permission and an editable version.

DISCLAIMER: References to fact sheets, services, products or corporations in this resource list is for informational purposes and does not constitute an endorsement or preference by EPA. EPA neither endorses nor guarantees in any way the external organizations, services, advice, or products included in these website links. Further, EPA neither controls nor guarantees the accuracy, relevance, timeliness, or completeness of the information contained in non-EPA website links. This document is not intended to represent all the possible technologies and resources available.

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Find a Bed Bug Pesticide Product

Disclaimer

Any products listed are for informational purposes only. Inclusion of a product listed/referenced is not an endorsement. EPA and the U.S. Government do not endorse any product or service.

The information in this database was last updated on 9/25/13. If you believe a product not on the list should be included, use the contact us link to request that the product be added.

EPA has developed a search tool that can help you choose an EPA-registered bed bug product that meets your needs. We cannot provide specific pesticide use recommendations. The products listed in this search tool are those that can be purchased by any consumer. There are other products that are only available for purchase and use by specially trained individuals.

Bed Bug Product Search Tool

As with all pest control situations:

- Use a product that fits your needs.
- Never use products indoors that are not approved for indoor use.
- Ensure that label directions are followed. For example, be sure to consider where you want to treat your bed bug infestation.
- Be aware of the [reasons that treatment can fail](#).

Foggers and bug bombs ***should not*** be used as the only method to attempt to control bed bugs.

Where do you want to use this product?

(Check one or more, if applicable. If you don't check a box, your search will return all types of bed bug products.)

- ☐ **Mattress**
- ☐ **Whole Home**
- ☐ **Whole Room**
- ☐ **Crack/Surface/Void (e.g. open spaces inside structures such as walls o**

You can refine your search by specifying one or more of the following optio

Which product are you interested i

You can leave blank to get a list of all products which fall under your criteria

Are you interested in a particular active ingredient?

All Ingredients



Are you looking for a specific company name?

All Companies



Do you know the EPA registration number of the product you are looking



You can leave blank to get a list of all products which fall under your criteria.

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Local Resources for Bed Bug Assistance

Bed bug support is widely available from a variety of sources. Many communities offer resources related to bed bugs. For example:

- Many counties, such as [Contra Costa](#) [EXIT](#) , and local health departments, such as [New York City's](#), provide online resources regarding bed bug issues both in general and specific to their regions.
- Other state level government departments, such as the [Virginia Department of Agriculture and Consumer Services](#) and the [California Department of Public Health](#), also have information about bed bugs, eradicating infestations, preventing them and much more from a state level standpoint.

Check these and visit the website of your [state or local health and regulatory departments](#) [EXIT](#) as possible sources of bed bug information and assistance.

Your [state cooperative extension service office](#) may be able to help with bed bug identification.

For issues related to paying for bed bug control, check with your local social service agencies. Financial assistance is not generally available. For example, EPA does not have any resources to pay for bed bug control.

If you are a landlord, there are various resources available that concentrate on your role in addressing bed bug issues of your renters. See [What Landlords Need to Know](#).

[Some states have laws and regulations related to bed bugs.](#)

[State and Local bed bug agencies](#) [EXIT](#) are also available to provide support and information about bed bug related topics.

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